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Exploring inventory management's effects on bottler's Nepal limited (Balaju) profitability

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ABSTRACT

The study aims in analyzing the relationship between the inventory management and profitability of a manufacturing company Bottlers Nepal (Balaju) Limited. The study has employed a descriptive and analytical research design. The secondary data have been extracted from the year 2006 to 2018 AD. ICP, ACP, ADP, CCC, SG, CR, FS and ROA as a dependent variable have been used in the study. The data have been analyzed using SPSS Software. The descriptive analysis, correlation analysis and regression analysis have been conducted in the study. The study concluded that the inventory conversion period has a significant positive relation with ROA whereas the firm size has significant negative relation with ROA. The findings have important implications to the regulators, shareholders and consumers. It would help them to identify the key drivers to achieve consistent and better financial performance which in turn led to know varying characteristics that could affect to their returns. The further research can be done to sustain the inventory management effectively to increase their profits.

Keywords: Return on assets, Cash conversion cycle, Sales growth, Current ratio, Firms Size, JEL Classification: C00, C12, D02, G10, G31

1. INTRODUCTION

An inventory represents investments made for obtaining a return (Nwakaego et al., 2014). Inadequate inventory has an adverse potential effect on the smooth running of the business, while excess inventory involves extra cost, which can reduce the firm's profits (Panigrahi, 2013). Excessive stock is not desirable for longer periods because high inventory levels increase carrying cost and as inventory is increases; the profitability decreases. With the ever-increasing demand in products, more and more management practices have evolved to ease the process of procurement by the customer. Highly efficient delivery system and supply chains are developed to ensure efficient delivery of the products to their consumers.

In the current scenario, when customer satisfaction and service have become a prime reason for business to stand apart from its competition, the need for effective inventory management is largely seen more as a necessity than a mere

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trend. As such, a well-functioning inventory system has a great effect on total firms' performance as well as that of the firms' managers (Akindipe, 2014). The study concentrates over inventory management study of Bottler's Nepal Limited (Balaju), which determines to know what is inventory, what type of inventory management are used in the company and what is the role of inventory for the smooth operation of the company and its influence on profit.

As industries are growing in number, the number of manufacturing organization is also increasing. Domestic industries are not able to meet the local demand due to inefficient production. Hence, the established company has its own production and market plan schedule. The purpose of manufacturing company is to change and to process materials which serves in different way to satisfy various requirement of human being converting the commodities into a more useful firm.

Any firm, from time to time, employs its short-term assets as well as short-term financing sources to carry out its day-to-day business. The economic order quantity theory, suggests that firms should maintain the quantity of inventory which provides the lowest total holding cost and acquiring cost (Milicevic et al., 2012). Thus, inventory management is vital for an effective and efficient firm. Moreover, the adequate and timely flow of inventory is imperative for the success and growth of any company. It examines the relationship between inventory conversion period and firms' profitability.

Inventory that is in process at different stages of completion are also consideration to be necessary for smooth flow of regular production (Weston and Copland, 1992). The nature of work in process depends upon the nature of production. Therefore, inventory should be adequately taken care of because it has to do with profit of the business. A well planned and effective stock management can contribute substantially to a firm annual turnover. Inventory management is an important aspect of any successful business. Inventory management is of high importance in financial management decision. This is because excess or shortage of this may bring danger to the company (Nwakaego et al., 2014).

The objective of inventory management is to maintain a system that minimizes total cost, while specifically, it establishes that the amount of stock to be ordered is optimal as well as the period between orders (Anene, 2014). Inventories must be both physically and financially controlled to ensure the Company's ability to operate efficiently and profitability. Based on this notion, the hypothesis has been developed as under;

H1: There is a negative significant relationship between cash conversion cycle on profitability of Bottler's Nepal Limited

H2: There is a positive significant relationship between average payment periods on profitability of Bottler's Nepal Limited

H3: There is a positive significant relationship between sales growths on profitability of Bottler's Nepal Limited

H4: There is a positive significant relationship between inventory conversion period and ROA of Bottler's Nepal Limited

Literature Review

Table 1 Literature Matrix (2000-2005)

Year	Authors	Findings
2005	Baldenius and Reichelstein, (2005)	Examined the residual income performance measure based on historical cost accounting provided managers with incentives to make optimal production and inventory depletion decisions
2000	Toomey, (2000)	Concluded that lack of control in inventory holding, results in under stocking and causes the organization to stay off production, thereby resulting in poor performance of the organization financially
2001	Gourdin, (2001)	Found that the costs incurred in carrying inventory demand are positively related to changes in inventory level
2001	Rajagopalan and Malhotra, (2001)	Analyzed the results of manufacturing inventory-reduction efforts
2002	Thomas and Zhang, (2002)	Examined that there was negative relationship between inventory level and firm's profitability
2002	Gaur et al., (2002)	Explained more than 50% of the variation in stock returns for periods of ten years or more and also explained similar return on assets and return on equity by following very different strategies with respect to their gross margins and inventory turns

2003	Deloof, (2003)	Analyzed increase their profitability by reducing the days-in inventory period
2003	Coyle et al., (2003)	Concluded that changes in inventory levels impact on return on assets which is a positive indicator of performance for current and potential investors
2004	Jayaram et al., (2004)	Concluded that integrating a technological inventory management system result in higher ROA
2004	Schreibfeder	Analyzed that a distributor does not earn profits until purchased material is resold to a customer at a price that is higher than its cost
2007	Roumiantev and Netessine, (2007)	Found no evidence that smaller relative levels are associated with financial performance as measured by return on assets
2005	Lai, (2005)	Concluded that the market punishes firms when it can tell that inventory decisions are bad and the inventory levels do not statistically explain firm value

Table 2 Literature Matrix (2006-2010)

Year	Authors	Findings
2006	Sawaya and Giauque, (2006)	Commented that right order for inventories at all times would promote high turnover thereby improving the profit level of the organization
2007	Raheman and Nasr, (2007)	Determined equilibrium between liquidity and profitability
2007	Pandey, (2007)	Found that the inventory policy would maximize the firm's profits at a point at which marginal return from the investment in inventory equals the marginal cost of funds used to finance the investment in inventory
2008	Appuham	Operating cash flow has significant relationship with working capital management
2008	Singh, (2008)	Suggested to maintain the inventory as per the requirements, so that liquidity will not interrupt
2009	Ramachandran and Janakiraman, (2009)	Found the cash conversion cycle and inventory day has negative correlation with earnings before interest tax and receivable days has positive relationship
2009	Capkun et al., (2009)	Revealed a positive correlation between a company's inventory management and its financial performance
2010	Kaur, (2010)	Revealed that there is a standoff between liquidity and profitability and the selected corporate achieving a trade-off between risk and return
2010	Gill and Mathur, (2010)	There is no significant relationship between ICP and firms' profit

Table 3 Literature Matrix (2011-2015)

Year	Authors	Findings
2011	Nobanee et al., (2011)	Concluded that there isa negative relationship between the cash conversion and the return on equity
2012	Quayyum, (2012)	He explained the optimum level of working capital in order to maximize the profitability
2012	Sahari et al., (2012)	Found that there is a positive link between inventory

		management and capital intensity
2013	Panigrahi, (2013)	Concluded that there is significant negative linear relationship between inventory conversion period and profitability
2013	Anichebe and Agu, (2013)	Established that inventory management had a significant effect on productivity of an organization and there was a strong positive correlation between inventory management and profitability of an organization
2014	Marobhe, (2014)	Found that there is significant relationship with profitability in both return on assets and operating margin
2015	Sitienei and Memba, (2015)	Revealed that inventory turnover, inventory conversion period, and inventory storage costs were negatively related to profitability
2015	Prempeh, (2015)	Explained that there is strong and positive relationship between raw material inventory management and profitability

Table 4 Literature Matrix (2016 Onwards)

Year	Authors	Findings
2016	Pokharel and Risal, (2016)	Nepali public manufacturing and trading enterprises were not able to manage liquidity in an effective way
2016	Kung'u, (2016)	The study shows that when firms maintain good inventory control systems, the firms' profits are high
2016	Etale and Bingilar, (2016)	Found that efficient inventory cost management has a positive effect on profitability
2017	Egbunike and Imade, (2017)	Indicated a positive relationship between the implementation of JIT and a firm's profit level in the small-scale business industry
2017	Risal, (2017)	Despite of ineffective structure and utilization of working capital by enterprises, public manufacturing enterprises was found more prone to working capital management in comparison with public trading enterprises
2017	Risal, (2017)	The public trading and manufacturing enterprises had used traditional methods for managing working capital
2017	Zeidan and Shapir, (2017)	Concluded that the general purpose of working capital management is to control the firms' current accounts to accomplish a desired balance between profitability and risk
2018	Risal, (2018)	The relationship between ICP, CCC and ROA was found positive whereas negative relationship between the PDP and ROA was found

Based on the literature review, the conceptual framework had been developed as in (Figure 1).
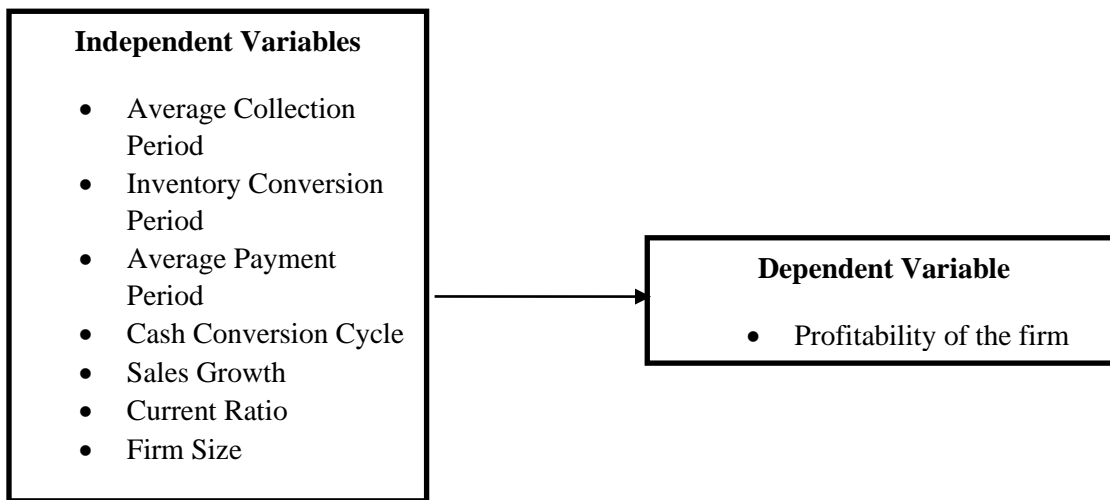
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┌─────────────────────────────────┐
│       Independent Variables      │
│                                 │
│   • Average Collection           │
│     Period                       │
│   • Inventory Conversion         │
│     Period                       │
│   • Average Payment              │
│     Period                       │
│   • Cash Conversion Cycle        │
│   • Sales Growth                 │
│   • Current Ratio                │
│   • Firm Size                    │
└─────────────────────────────────┘
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┌─────────────────────────────────┐
│   Dependent Variable   │
│   │
│   • Profitability of the firm   │
└─────────────────────────────────┘

Figure 1 Conceptual Framework

Operational Definition

Average collection period

The average collection period is the average number of days required to collect invoiced amount from customers. The measure is used to determine the effectiveness of company's credit granting policies. A higher collection period indicates slower collection and lower quality of trade credit. While shorter collection period represents better quality of customers and lower cost of collections. The average collection period thus reflects the credit and collection policies of the firm.

Inventory conversion Period

The inventory conversion period is the time required to obtain materials for a product, manufacture it and sell it. In other words, it measures the length of time on average between the acquisition and sale of merchandise. It is essentially the time period during which companies invest cash while it converts material into sale. An increase of the inventories is an affect from a decrease in sales which leads to lower profit for the companies. It also indicates the company has improved their inventory management.

Average payment period

Average payment period means the average period taken by a company in making payments to its creditors. It is a solvency ratio that measures the average period formulates a lean plan to retain most profit from sales. The company with positive payment period means that managers can create profits for handling correctly the inventory at an optimal level.

Cash conversion cycle

Cash conversion cycle expresses the time it takes for a company to convert its investments in inventory. It also evaluates the efficiency of company's operation and management. It is the length of time that funds are tied up between paying for working capital and collecting cash from the sale of working capital. The longer the production process, the more cash firm must keep up in inventories. On the other hand, if firm can delay paying its materials, it may decrease the amount of cash it needs as there is no any outflow at the moment.

Sales growth

Sales growth is considered positive for a company's survival and profitability. It may result in increased dividends for shareholder or higher stock prices. Sales growth generally utilizes capacity more fully, which spreads fixed cost over more revenue resulting in higher profitability. When the sales growth is independent and unrelated the growth increases or decreases arbitrarily and there is unlimited variance of the size of the firm. It also foretells that the past growth does not depict the future growth of the firm.

Current ratio

Current ratio is a liquidity ratio that that tells investors and analyst how a company can maximize the current assets to satisfy its current debt and other payables. A company with higher current ratio may not always be able to pay its current liabilities as they

become due if a large position of its current assets consists of slow-moving inventories. On the other hand, a company with low current ratio may be able to pay its current obligation.

Firm size

The firm size for a company in a given industry at a given time results in the lowest production costs per unit of output. There is significant relationship between firm sizes suggesting firms with higher needs for equipment are longer. We see positive but significant relationship indicating more profitable if firms tend to be longer. A positive relation has been found between total sales and profitability of the firms but on the contrary a negative relation has been found between profitability and total assets.

2. RESEARCH METHODS

The study had adopted descriptive and analytical research design. The secondary data had been collected from the annual reports of Bottlers Nepal Limited, Balaju. The purposive sampling method had been used. The data from 2006 to 2018 had been collected from the annual report of the company. The data collected had been analyzed using SPSS Version 20. Descriptive, correlation and regression analysis were applied to study and compare the effect of independent variables on the dependent variable.

Return on assets (ROA), Inventory conversion period (ICP), Cash conversion cycle (CCC), Average collection period (ACP), Average payment period (ADP), Current ratio (CR), Sales Growth (SG) and Firm size (FS) were the variables used in the study. Data analysis was carried out using mean, standard deviations, standard error, regression analysis, correlation and sample t-tests to accomplish the objectives of the study.

Financial tools

Model Specifications

$ROA = a + \beta_1 ICP + \beta_2 RCP + \beta_3 CCP + \beta_4 ADP + \beta_5 CR + \beta_6 FS + \beta_7 SG + e$

Where,

y = Dependent Variable (ROA)

a = Constant Term

ROA = Return on assets

ICP = Inventory conversion period

RCP = Receivable conversion period

ADP = Average deferred period

CCP = Cash conversion period

CR = Current ratio

SG = Sales growth

FS = Firm size

ε = Error term

Measurement Scales

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ are the coefficient of the regression

Return on Assets = Net Income / Total Assets

Average Collection Period = Receivables / Sales * 365

Inventory Conversion Period = Inventory / Cost of Sales * 365

Average Payment Period = Payables / Sales *365

Cash Conversion Cycle = ACP+ ICP-ADP

Current Ratio = Current Assets / Current Liabilities

Firm Size = Ln (Total Assets)

Sales Growth = $(Sales_t - Sales_{t-1}) / Sales_{t-1}$

3. RESULTS

Determination of Sales revenue, Earning after tax, Inventory and Cost of sales

Table 5 showed the company's sales revenue, earning after tax, inventory and cost of sales from the period of 2006/2007 to 2017/2018 AD. Table 5 had shown the structure of total sales was lowest in the year 2006/2007 and highest in the year 2017/2018. The

inventory was found lowest in the year 2006/2007. The sales of company were in increasing trend from 2006/2007 to 2018/2019. Only in the year 2006/2007 and 2014/2015 the earnings after tax were negative which meant the amount had decreased.

Table 5 Determination of Sales revenue, Earning after tax, Inventory and Cost of sales

Year	Sales Revenue	Earnings After Tax	Inventory	Cost of Sales
2006/2007	634,189,583	-30,307,349	189,256,239	389,258,445
2007/2008	746,581,607	33,414,638	144,004,094	455,134,052
2008/2009	1,002,720,181	20,530,646	208,777,458	621,893,624
2009/2010	1,588,149,524	175,333,047	305,228,897	894,877,431
2010/2011	1,852,039,938	1,289,744,784	337,039,500	1,048,185,400
2011/2012	2,370,659,718	279,947,057	355,875,551	1,360,987,259
2012/2013	2,541,089,724	239,627,875	409,195,415	1,603,316,579
2013/2014	2,318,023,183	54,996,687	467,467,406	1,422,585,749
2014/2015	2,138,312,349	99,688,961	585,473,821	1,498,981,556
2015/2016	2,515,777,552	138,157,529	611,905,111	1,676,528,746
2016/2017	2,742,896,751	244,203,730	579,662,933	1,832,969,788
2017/2018	3,093,063,552	307,426,439 6	662,166,455	2,048,521,957

Determination of ROA, ICP, ACP, ADP, CCC, SG, CR and FS

Table 6 represented the independent variable and dependent variables of the companies from the year 2006 to 2018 AD. Table 6 showed that ROA was negative in the year 2006/2007 and in the coming year it was positive which showed the company's more profit. The ICP, ACP, ADP, CR and FS were positive from the year 2006/2007 to 2017/2018. The SG was negative in the year 2012/2013 and 2013/2014 which shown there was decline in company's sales or earnings.

The SG of remaining year was positive which resulted in increased dividends for company's shareholder. The variables were increasing as well as decreasing from year to year. The trend was fluctuating. The CCC was decreasing in the first three years and it increased in next year again it went down for two years and after then it was in increasing trend. The calculation of the variables showed what impact had on its inventory management and its profitability.

Table 6 Determination of ROA, ICP, ACP, ADP, CCC, SG, CR and FS

Yr	2006/7	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
ROA	-0.13	0.08	0.04	0.28	0.28	0.28	0.17	0.04	-0.04	0.06	0.09	0.11
ICP	177.4	115.4	122.5	124.5	117.3	95.4	93.1	119.9	142.5	133.2	115.4	117.9
ACP	30.4	17.9	10.9	8.1	8.94	6.59	7.3	31.4	84.5	34.4	14.4	23.4
ADP	427.8	211.5	182.4	106.7	135.4	92.1	143.3	177.2	96.8	128.0	127.6	69.4
CCC	-219.9	-78.0	-48.9	25.8	-9.18	9.9	-42.86	-25.8	130.3	39.6	2.21	72.0
SG	0.18	0.34	0.58	0.17	0.28	0.07	-0.09	-0.08	0.18	0.09	0.13	0.17
CR	0.63	0.86	0.85	0.99	0.81	1.06	1.02	0.96	0.95	0.96	1.13	1.36
FS	20.2	20.1	20.2	20.2	20.5	20.5	20.64	20.6	21.5	21.5	21.7	21.7

Descriptive Statistics

Table 7 represented the descriptive statistics of the component of independent variable and dependent variables. Table 7 had shown that profitability represented by return on assets (ROA) had an average of 0.10 and standard deviation 0.13 which tended to be very close to the mean. Similarly, the average of company to invest in cash while converting material into sale was inventory conversion period (ICP) with mean 122.92 and its standard deviation was 21.92. The average number of days required to collect amount from the customers by credit granting policies was 23.23 with the standard deviation 21.80. The cash conversion cycle (CCC) expressed the average to convert its investments in inventory whose average was 0.17 with its standard deviation 0.19.

The sales growth (SG) was considered for company's profitability as its average was 0.97 with decreasing standard deviation 0.18. The current ratio (CR) indicated the average of 20.81 with its standard deviation 0.63 to satisfy its current debt and other payables. The firm size (FS) showed the negative average of (-12.06) and higher standard deviation with 86.45 which resulted in the lowest production cost of output. However, the mean for the average payment period (ADP) was the highest time taken by the

company which was 158.21 with the highest standard deviation 94.25 which indicated the data points were spread out over a large range of values.

Table 7 Descriptive Analysis

Variables	Mean	Standard Deviation
ROA	0.10	0.13
ICP	122.92	21.92
ACP	23.23	21.80
ADP	158.21	94.25
CCC	0.17	0.19
SG	0.97	0.18
CR	20.81	0.63
FS	-12.06	86.45

Correlation Analysis

Table 8 presented the Pearson Correlation analysis between the study variables taken under study. Table 8 demonstrated all the independent variables had positive and significant relationship with the dependent variable at 1 percent and 5 percent level of significance. The highest correlation coefficient of return on assets could be observed as 0.741 with the profitability of the firm. It means that it could lead to increase in inventory and the relationship was significant at 1 percent level of significance. Hence it indicated more assets efficiency. The correlation coefficient of average payment period could be observed as 0.691 with the profitability which suggested the payment period led to increase in an inventory.

There was significant relationship between the inventory and the average payment period at 5 percent level of significance. The correlation coefficient of average collection period could be observed as 0.529 with the profitability which suggested the collection period led to increase in an inventory. There was significant relationship between the inventory and the average collection period. The correlation coefficient of cash conversion cycle could be observed -0.366 with the profitability which suggested the collection period led to decrease in an inventory. There was negative significant relationship between the inventory and cash collection period. The correlation coefficient of sales growth could be observed 0.217 with the profitability which suggested increase in an inventory.

There was positive significant relationship between the profitability and sales. The correlation coefficient of current ratio could be observed -0.560 with the profitability which suggested decreased in an inventory. There was negative significant relationship between the profitability and current ratio as it determined equilibrium between liquidity and profitability. The correlation coefficient of firm size could be observed -0.023 with the profitability which suggested decreased in an inventory. There was negative significant relationship between the profitability and firm size. In conclusion, average payment period (0.691), average collection period (0.529), sales growth (0.217), return on assets (0.741) indicated positive relationship and cash conversion cycle (-0.366), current ratio (-0.560) and firm size (-0.023) indicated negative relationship with profitability of the firm.

Table 8 Correlation Matrix

Variables	ICP	ACP	ADP	CCC	SG	CR	FS	ROA
ICP	1	0.529	.691*	-0.366	0.217	-0.560	-0.023	-.741**
ACP	0.529	1	0.004	0.382	-0.083	-0.080	0.455	-.634*
ADP	.691*	0.004	1	-.914**	0.150	-.764**	-0.514	-.618*
CCC	-0.366	0.382	-.914**	1	-0.129	.671*	.670*	0.326
SG	0.217	-0.083	0.150	-0.129	1	-0.320	-0.289	-0.115
CR	-0.560	-0.080	-.764**	.671*	-0.320	1	.671*	0.346
FS	-0.023	0.455	-0.514	.670*	-0.289	.671*	1	-0.161
ROA	-.741**	-.634*	-.618*	0.326	-0.115	0.346	-0.161	1
* Correlation is significant at the 0.05 level. ** Correlation is significant at the 0.01 level (2-tailed)								

Regression Analysis

Table 9 presented the model summary with the variable's average payment period, average collection period, sales growth, firm size and current ratio and inventory conversion period. Table 9 presented the value of adjusted R^2 92.5 percentages which indicated that portfolio closely tracks stock index. Higher R^2 value indicated the reliability of beta. The value of standard error of estimate was .05251 which was root mean of squared error.

Table 9 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.962	0.925	0.835	0.05251
Predictors: (Constant), ADP, ACP, SG, FS, CR, ICP				

Table 10 Regression Analysis Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.16991	6	0.02832	10.2708	.011[b]
	Residual	0.01379	5	0.00276		
	Total	0.1837	11			

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.815	0.877		2.069	0.093
	ICP	0.002	0.002	0.376	1.332	0.240
	ACP	-0.004	0.001	-0.732	-3.583	0.016
	FS	-0.065	0.050	-0.318	-1.301	0.250
	CR	-0.237	0.193	-0.330	-1.227	0.274
	SG	-0.192	0.102	-0.267	-1.873	0.120
	ADP	-0.002	0.000	-1.249	-4.413	0.007

The model could be extended with its coefficient as under;

Y = 1.851+ 0.002ICP - 0.004ACP- 0.065FS- 0.237CR- 0.192SG- 0.002ADP+e

Regression coefficient presents that value of beta is 1.815 meant that one unit increase or decrease in the independent variable caused 1.815 increased or decreased in dependent variable. The value of beta coefficient of ICP was 0.002 meant in every unit increased in ICP; a 0.002 unit increased in profitability of the firm had been predicted holding other variable constant. The significant t-statistics had shown the relationship between ICP and profitability of the firm. The value of beta coefficient of ACP was -0.004; meant in every unit increased in ACP, a 0.004 unit decreased in profitability of the firm had been predicted, holding other variables constant. The significant t-statistics shown relationship between ACP and profitability of the firm.

The value of beta coefficient of FS was - 0.0065; meant in every unit increased in ACP, a 0.0065 unit decreased in profitability of the firm had been predicted, holding other variables constant. The value of beta coefficient of CR was -0.237; it meant in every unit increased in CR, a 0.237 unit decreased in profitability of the firm had been predicted, holding other variables constant. The value of beta coefficient of SG -0.192 meant in every unit increase in SG, a 0.192 unit decreased in profitability of the firm had been predicted, holding other variables constant.

The value of beta coefficient of ADP was -0.002; meant in every unit increased in ADP, a -0.002-unit ADP had been predicted, holding other variables constant. The significant t-statistics had shown the relationship between ADP and profitability of the firm. From the co-efficient table above, ACP, ICP, ADP, FS, CR, SG had a p-value less than the standard significance level of 0.05; we reject the null hypothesis and concluded that these variables had significant effect on the profitability of Bottler's Nepal Limited (Balaju).

Testing of Hypothesis

H1: Cash conversion cycle had no significant impact on Bottler's Nepal Limited. The insignificant correlation coefficient and regression analysis resulted the non-acceptance of alternative hypothesis.

H2: Average payment period had significant impact with the inventory period. The significant correlation coefficient and regression analysis resulted the rejection of null hypothesis. This meant the average payment period had significant impact on Bottler's Nepal Limited.

H3: Sales growth had significant impact on profitability of the Bottler's Nepal Limited. The significant correlation coefficient and regression analysis resulted the rejection of null hypothesis. This meant that sales growth had significant impact on Bottler's Nepal Limited.

H4: Inventory conversion period and profitability had significant impact on Bottler's Nepal Limited. The significant correlation coefficient and regression analysis resulted the rejection of null hypothesis. This meant that ROA had significant impact on Bottler's Nepal Limited.

4. DISCUSSIONS AND CONCLUSIONS

The study had used the panel data of Bottler's Nepal Limited (Balaju) for the period of 12 years. The relationship between inventory management (independent variables) against profitability of the firm (dependent variable) had been analyzed. The analysis result had revealed the mixed results between inventory management and profitability which meant the variables indicated a positive as well as negative relationship with the company profitability. In the modern competitive world, the decision about receivables and its impact had become a matter of life or death in uncertain economic times.

Therefore, Nepalese listed company should pay special attention to the management of account receivable as the accounts receivable holds around one fourth of the current assets. It would be better to provide cash discount to encourage early payment to control receivables for those enterprises that had got larger share of receivable and longer average collection period. However, it could be said that the company should purchase raw materials through local market as far as possible. As a result, leading Bottler's Nepal Limited manufacturing company of Nepal was not able to follow the scientific techniques of inventory management. The percentage of raw material and finished goods inventory on total inventory was not so fluctuate. It was slightly less or more than the average during the study period.

The lowest inventory conversion period was in the year 2012/2013. It shown that the production and sales were very efficient and effective in the study period. Finally, the study revealed that inventory conversion period had positive relationship with the profitability of the company. The inventory management policies adopted by the firms according to economic conditions could move them in different level of profitability. Hence, if firms operating sustained their inventory management policy effectively, they could increase their profits.

Implications

The study results could motivate the managers to have best line of actions in order to control the inventory management and profitability. The management of Bottler's Nepal Limited should increase the use of more financial ratios because they had influenced on the profitability in terms of both inventory management and its financial ratios. The time and material requirement planning would be beneficial for such type of manufacturing company.

The optimization model could be used as a tool to considered changes in inventory policy and to make optimum use of inventories in order to achieve a maximum return at an acceptable level of risk. The future studies could explore the impact of such phenomena on the company and ways that inventory management could be encouraged to take a more active role in increasing the profitability of Bottlers Nepal (Balaju) Limited.

Ethical Approval

This article does not contain any studies with human participants performed by any of the authors.

Informed consent

Not applicable.

Ethical approval

Not applicable.

Data and materials availability

All data associated with this study are present in the paper.

REFERENCES AND NOTES

1. Akindipe OS. Inventory Management-A Tool for optimal use of resources and overall efficiency in manufacturing SMEs. J Entrepreneurship Manag Innov 2014; 10(4):93-114.

2. Anene EC. What difference does inventory control make in typical small scale farms' Profitability. Int J Manag Sci Bus Res 2014; 3(10):1-4.

3. Anichebe NA, Agu OA. Effect of inventory management on organizational effectiveness. Inf Knowl Manag 2013; 3(8):92-100.

4. Baldenius T, Reichelstein S. Incentives for efficient inventory management: The role of historical cost. Manag Sci 2005; 51(7):1032-1045.

5. Capkun V, Hameri AP, Weiss LA. On the relationship between inventory and financial performance in manufacturing companies. Int J Oper Prod Manag 2009; 29(8).

6. Coyle JJ, Bardi EJ, Langley JC. The management of Business Logistics: A Supply Chain Perspective. Canada. Thomsom South-Western 2003.

7. Deloof M. Does working capital management affect profitability of Belgian firms? J Bus Finance Account 2003; 30(3-4):573-588.

8. Egbunike PA, Imade OG. Just in time strategy and financial performance of small-scale industry in ogun state: A study of ADO-ODO/OTA local government. Int J Account Res 2017; 42(5544):1-4.

9. Etale LM, Bingilar PF. The effect of inventory cost management on profitability: A study of listed brewery companies in Nigeria. Int J Econ Commerce Manag 2016; 4(6):446-455.

10. Gaur V, Fisher M, Rahan A. What Explains Superior Retail Performance? Working Paper No. OM-2005-03, New York University 2002.

11. Gill A, Mathur N. Factors that affect potential growth of Canadian firms. J Appl Finance Bank 2010; 1(4):107.

12. Gourdin KN. Global Logistics Management. Malden: Black well Business 2001; 299.

13. Jayaram J, Kannan VR, Tan KC. Influence of initiators on supply chain value creation. Int J Prod Res 2004; 42(20):4377-4399.

14. Kaur J. Working capital management in Indian tyre industry. Int Res J Finance Econ 2010; 46(1):7-15.

15. Kung'u JN. Effects of inventory control on profitability of industrial and allied firms in Kenya. IOSR J Econ Finance 2016; 7(1):9-15.

16. Lai RK. Inventory signals. Harvard NOM Research Paper Series (06-09) 2006; 26.

17. Marobhe MI. An empirical analysis of the relationship between working capital management and profitability: Panel evidence from listed manufacturing companies in East Africa. Eur J Bus Manag 2014; 6(7):212-219.

18. Milicevic N, Davidovic M, Stefanovic M. Financial effects of inventory management in trading companies-EOQ model. Econ Organ 2012; 9(4):507-519.

19. Nobanee H, Abdullatif M, Al-Hajjar M. Cash conversion cycle and firm's performance of Japanese firms. Asian Rev Account 2011; 19(2):147-156.

20. Nwakaego D, Dorathy O, Ikechukwu O. Inventory management on the profitability of building materials, chemical and paint companies in Nigeria. World J Manag Behav Stud 2014; 2(2):21-27.

21. Pandey IM. Financial Management. New Delhi. Vikas Publishing House Pvt. Ltd 2011.

22. Panigrahi CMA. Relationship between inventory management and profitability: An empirical analysis of Indian cement companies. Asia Pac J Mark Manag Rev 2013; 2(7).

23. Pokharel BB, Risal N. Analysis of short-term financial liquidity position of public manufacturing and trading enterprises: Empirical evidence from Nepal. J Indian Res 2016; 4(1-4):101-116.

24. Prempeh KB. The impact of efficient inventory management on profitability: Evidence from selected manufacturing firms in Ghana. Int J Finance Account 2016; 5(1):22-26.

25. Quayyum ST. Relationship between working capital management and profitability in context of manufacturing industries in Bangladesh. Int J Bus Manag 2012; 7(1):58.

26. Raheman A, Nasr M. Working capital management and profitability–case of Pakistani firms. Int Rev Bus Res Papers 2007; 3(1):279-300.

27. Rajagopalan S, Malhotra A. Have US manufacturing inventories really decreased? An empirical study. Manuf Serv Oper Manag 2001; 3(1):14-24.

28. Ramachandran A, Janakiraman M. The relationship between working capital management efficiency and EBIT. Manag Glob Transit 2009; 7(1):61.

29. Risal N. A structure and utilization of working capital: An empirical glance on public manufacturing and trading enterprises in Nepal. ORSN Conf Proc 2017; 1:67-84.

30. Risal N. A survey on working capital management practices in public manufacturing and trading enterprises in Nepal. DAV Res J 2017; 2(1):49-61.

31. Risal N. The impacts of working capital management on the profitability of public manufacturing and trading enterprises in Nepal. KAAV Int J Law Finance Ind Relat 2018; 5(1):53-75.

32. Risal N. Working Capital Management Practices in Nepali Public Enterprises. Germany: Lap Lambert Academic Publishing 2018.

33. Roumiantsev S, Netessine S. What can be learned from classical inventory models: A cross-industry empirical investigation. Manuf Serv Oper Manag 2007; 9(4):409-429.

34. Sahari S, Tinggi M, Kadri N. Inventory management in Malaysian construction firms: impact on performance. SIU J Manag 2012; 2(1):59-72.

35. Sawaya Jr, Giauque. Production and Operations Management Orlando FL: Harcourt Brace Jovanovich Inc 2006.

36. Singh P. Inventory and working capital management: An empirical analysis. IUP J Account Res Audit Pract 2008; 7(2):53-73.

37. Sitienei E, Memba F. The effect of inventory management on profitability of cement manufacturing companies in Kenya: A case study of listed cement manufacturing companies in Kenya. Int J Manag Commerce Innov 2015; 3(2):111-119.

38. Thomas JK, Zhang H. Inventory changes and future returns. Rev Account Stud 2002; 7(2-3):163-187.

39. Toomey JW. Inventory management: Principles, concepts and techniques. Springer Sci Bus Media 2000; 12.

40. Weston JF, Copeland TE. Managerial Finance, 9-th ed. Dryden, HBJ 1992.

41. Zeidan R, Shapir OM. Cash conversion cycle and value-enhancing operations: Theory and evidence for a free lunch. J Corp Finance 2017; 45:203-219.